REMARKS

In light of the previous Amendments and following Remarks, reconsideration and allowance of the above-captioned application are respectfully requested.

The Amendments to the Specification submitted herewith merely add the trademark symbol to the trademarks pointed out in the Office Action, and add no new matter to the specification as filed.

Claim 1-34 are currently pending in the above-captioned application, including pending independent claims 1, 12, 19, and 28. In general, the presently pending claims are directed to a composition (as in claims 1-18 and 28-34) or a sensory device (as in claims 19-27) including a crystalline colloidal array that is stabilized by one or more poly(ethylene glycol) variants. For example, in claims 1-27, the crystalline colloidal array can be encapsulated within a polymeric matrix of polymerized poly(ethylene glycol) monomers that have been polymerized among the ordered particles of the crystalline colloidal array. Claims 28-34 are directed to an aqueous solution including the crystalline colloidal array and high molecular weight poly(ethylene glycol) macromolecule in a concentration such that the viscosity of the solution is increased due to the presence of the poly(ethylene glycol) and hence provides stability to the crystalline colloidal array.

In the Office Action, claims 1-6, 8-15, 17-22, and 27 were rejected under 35 U.S.C.§103(a) as being unpatentable over Asher, et al. (U.S. Patent No. 6,753,191) in light of Santini, Jr., et al. (U.S. Patent No. 6,123,861), and claims 24-26 were rejected under 35 U.S.C.§103(a) as being unpatentable over Asher, et al. '191 in light of Santini, Jr., et al., and further in view of Asher, et al. (U.S. Patent No. 6,165,389) or Asher, et al. (U.S. Patent No. 6,123,845).

Asher, et al. '191 has a filing date of September 17, 2001. The present application, filed November 30, 2001, claims benefit of U.S. Provisional application No. 60/250,657, filed December 1, 2000. Applicants respectfully submit that the inventions described in the presently pending claims were disclosed in the manner provided by the first paragraph of 35 U.S.C. §112 in the related provisional application, and as such, Asher, et al. '191 may not be a prior art reference under 35 U.S.C. §103(a). Nevertheless, Applicants further submit that the presently pending claims patentably

define over the cited references for at least the reason that there is no incentive to combine Asher, et al. '191 with Santini, Jr., et al. as suggested in the Office Action.

Asher, et al. '191 discloses a polymerized crystalline colloidal array that combines a mesoscopically periodic array of colloidal particles polymerized into a hydrogel. The electrically charged particles that make up the array can self-assemble and form a crystalline colloidal array due to interaction between the particles (col. 8, ll. 33-34). Generally, the particles can be between about 50 and 1000 nanometers (col. 8, ll. 7-10).

Examples of suitable gels for embedding the crystalline colloidal arrays include acrylamide gels, purified agarose gels, N-vinylpyrolidone gels and methacrylate gels, and in certain preferred embodiments of the invention, the hydrogel monomer component is acrylamide (col. 7, ll. 43-52). Asher, et al. '191 does not disclose or suggest encapsulating the crystalline colloidal array in a polymeric matrix of polymerized poly(ethylene glycol).

When a crystalline colloidal array is polymerized into a hydrogel, the hydrogel monomers do not encapsulate the crystalline colloidal array as a whole, but rather polymerize among the particles and around the individual particles so as to encapsulate the individual particles of the array (see, for example, Figure 1 of Asher, et al. '191). Asher, et al. '191 also teaches that the crystalline colloidal array is not destroyed or disordered by the polymerization (col. 8, ll. 45-48). Thus, according to Asher, et al. '191 a hydrogel can be formed from certain disclosed monomers. The monomers are those that can polymerize around the individual particles of the array such that following polymerization, the formed polymeric matrix confines the individual particles of the array. In addition, the polymerized monomers do not interfere with the array. That is, following polymerization, the ordered particles forming the CCA maintain their order, and thus, the particles maintain the ability to interact electronically with one another.

Santini, Jr., et al. is directed to microchip devices that can deliver drugs and other molecules according to the needs of a patient or experimental system. The devices of Santini, Jr., et al. include several different portions including a substrate, reservoirs, a release system and optionally, reservoir caps, control circuitry, and a power source. (col. 4, ll. 27-31).

Santini, Jr., et al. mentions poly(ethylene glycol) as a possible material in two of the portions of the microchip device. First, in the paragraph at column 4, lines 35-60, Santini, Jr., et al. teaches that the etched or machined substrate can be encapsulated in poly(ethylene glycol) so as to improve biocompatibility. Santini, Jr., et al. does not, however, teach what form this poly(ethylene glycol) encapsulation may take. In particular, the patent does not teach that this is a poly(ethylene glycol) hydrogel material. The patent does teach in this paragraph the encapsulation by poly(ethylene glycol) of a large substrate so as to improve the biocompatibility of the substrate. In particular, the complete size of the typical device can vary from 10 μm to several millimeters (col. 4, l. 9). In this instance then, Santini, Jr., et al. discloses poly(ethylene glycol) as being suitable for encapsulation of a single, relatively large, substrate in order to improve biocompatibility of the large substrate.

Applicants respectfully submit that there is nothing in this teaching to suggest that poly(ethylene glycol) would therefore be suitable for utilization as a hydrogel monomer as described in Asher, et al. '191. Specifically, there is no reference found in this teaching of Santini, Jr., et al. to suggest that poly(ethylene glycol) could be polymerized as a hydrogel in which multiple individual 50 to 1000 nanometer-sized colloid particles can be encapsulated so as to contain each particle in the hydrogel matrix and yet still allow the particles to electrically interact with one another as is required of the monomers of Asher, et al. '191.

The second portion of the microchip device of Santini, Jr., et al. that can include poly(ethylene glycol) is the release system that can be loaded into the reservoirs of the substrate (col. 4, l. 63 – col. 5, l. 63). Here, Santini, Jr., et al. teaches that the molecules to be delivered by the device can be placed in a matrix formed of a degradable material or a material that releases incorporated molecules by diffusion out of or disintegration of the matrix. Poly(ethylene glycol) is disclosed as a synthetic, non-degradable polymer suitable for the release system. Thus, according to Santini, Jr., et al., individual molecules can be released from a poly(ethylene glycol) matrix through diffusion of the molecules through the matrix or through disintegration or erosion of the matrix. Applicants respectfully submit that, similar to the utilization of poly(ethylene glycol) to encapsulate a single, large substrate, there is nothing in this teaching to

suggest that poly(ethylene glycol) would therefore be suitable for formation of a hydrogel matrix in which multiple individual 50 to 1000 nanometer-sized colloid particles can be held within the matrix and still allow the particles to electrically interact with one another as is required of the monomers of Asher, et al. '191. In fact, in this particular teaching of Santini, Jr., et al., the poly(ethylene glycol) matrix is taught as a suitable matrix for release of individual molecule-sized particles, and not encapsulation and the holding of particles, as is required of the hydrogels matrices of Asher, et al. '191.

Applicants respectfully maintain there is no teaching, suggestion, or incentive to combine Asher, et al, '191 with Santini, Jr., et al. as suggested in the Office Action, and, for at least these reasons, the presently pending claims patentably define over the cited references.

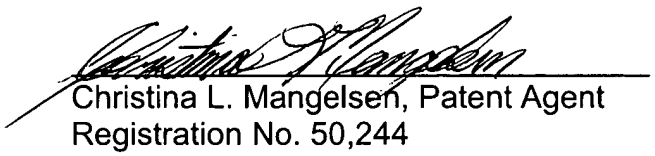
It is believed that the present application is in complete condition for allowance and favorable action, therefore, is respectfully requested. Examiner Kugel is invited and encouraged to telephone the undersigned, however, should any issues remain after consideration of this response.

Please charge any additional fees required by this Request for Reconsideration to Deposit Account No. 04-1403.

Respectfully submitted,

DORITY & MANNING, P.A.

11/15/04
Date



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